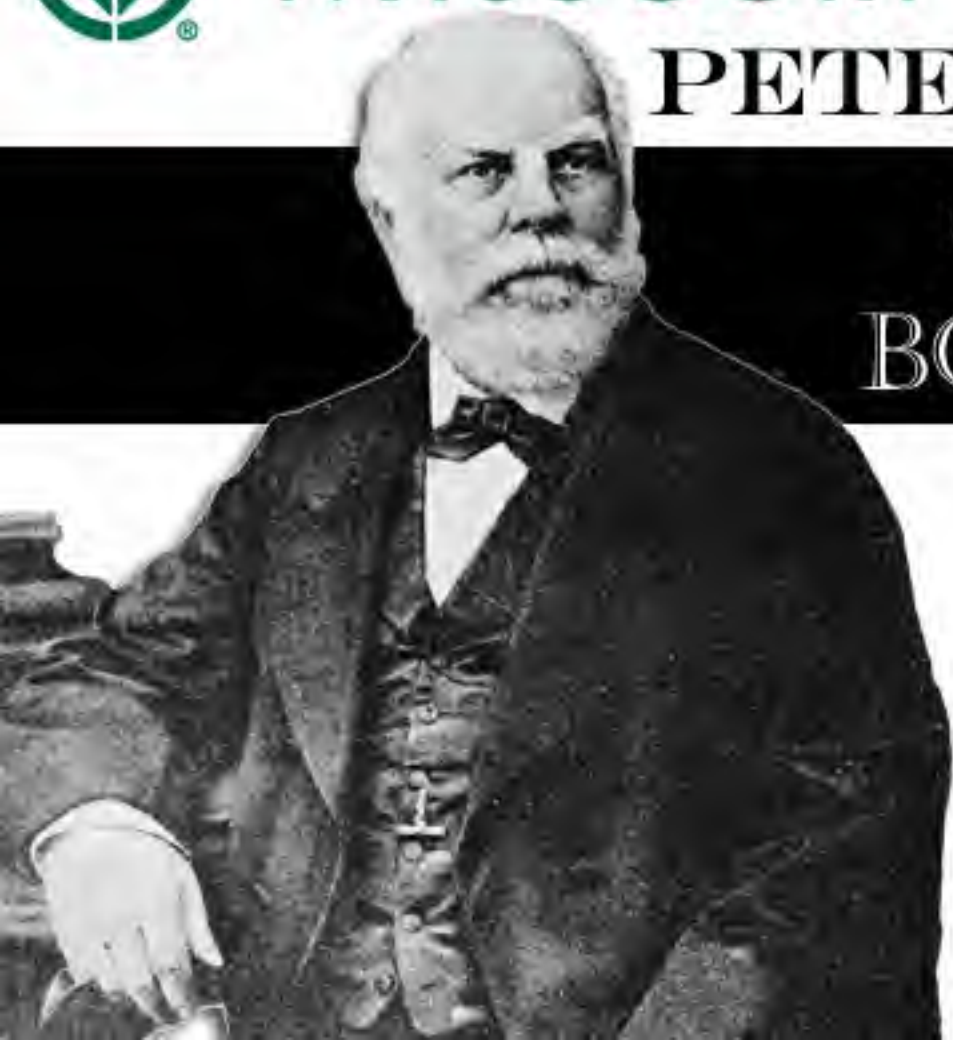


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BOTANICAL NOTEBOOKS



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4 tab

*R. jeffreyi*

55-

165-8



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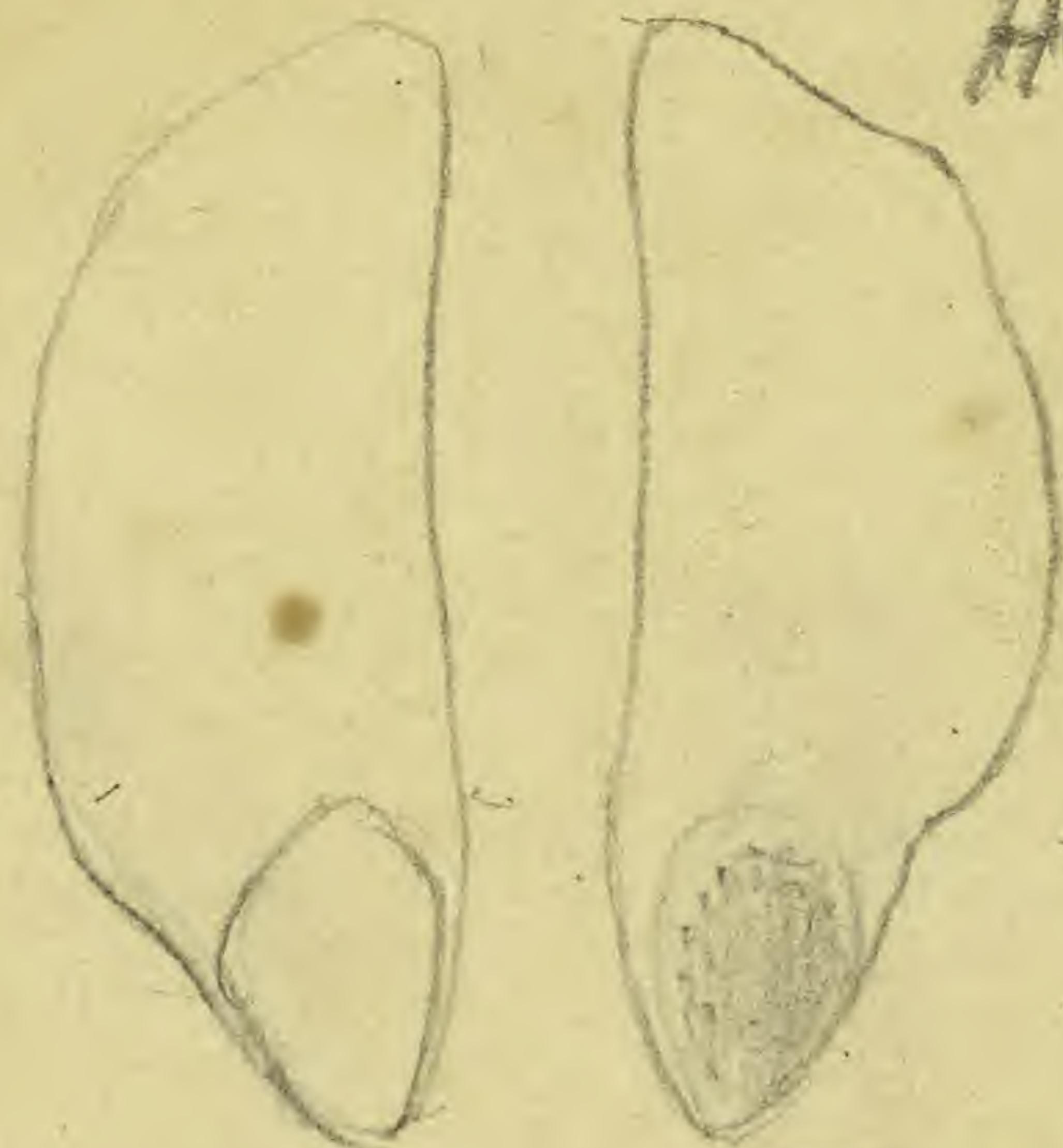


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March 11 1875

*Pinos Jeffreyi*  
Mt Shasta, Jeffrey 1852  
Hb Kew

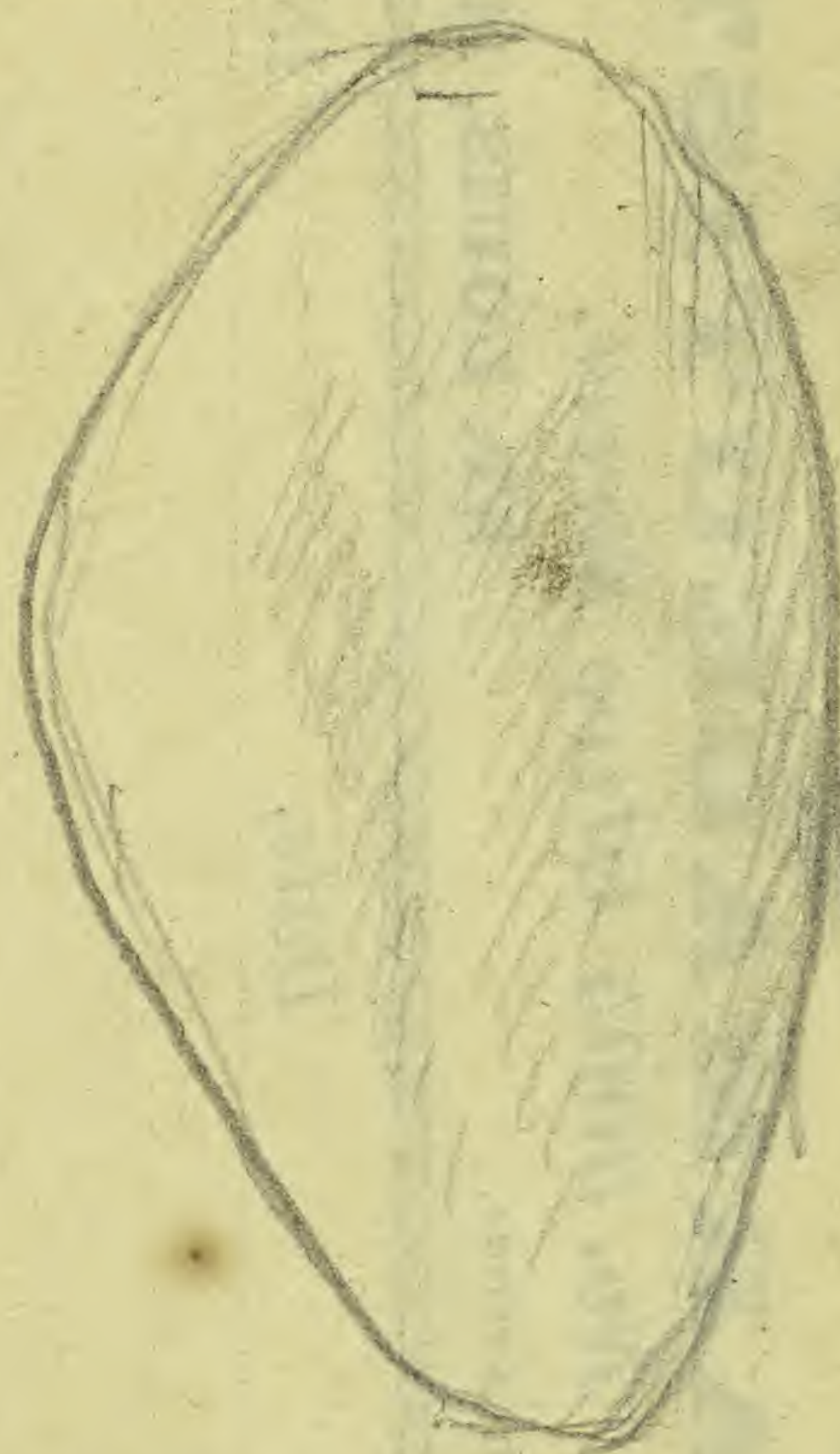


inner  
or lower  
surface

outer  
or upper  
surface



seed  
x4



x4

*Bolander mis.*  
from Big Creek

seeds 4-7 lines long



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11118

**D. Schroeder,**

**PHARMACEUTIST,**

*No. 3005 Olive Street,*

Near Garrison Avenue,

**ST. LOUIS, MO.**

No.

Date,

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*Pinus Jeffreyi*  
Bolander  $\frac{27}{7}$  1866

back view

x4



frontal view



x4

bract

exterior scales 5 mm  
innermost 12 mm long

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Druggist,

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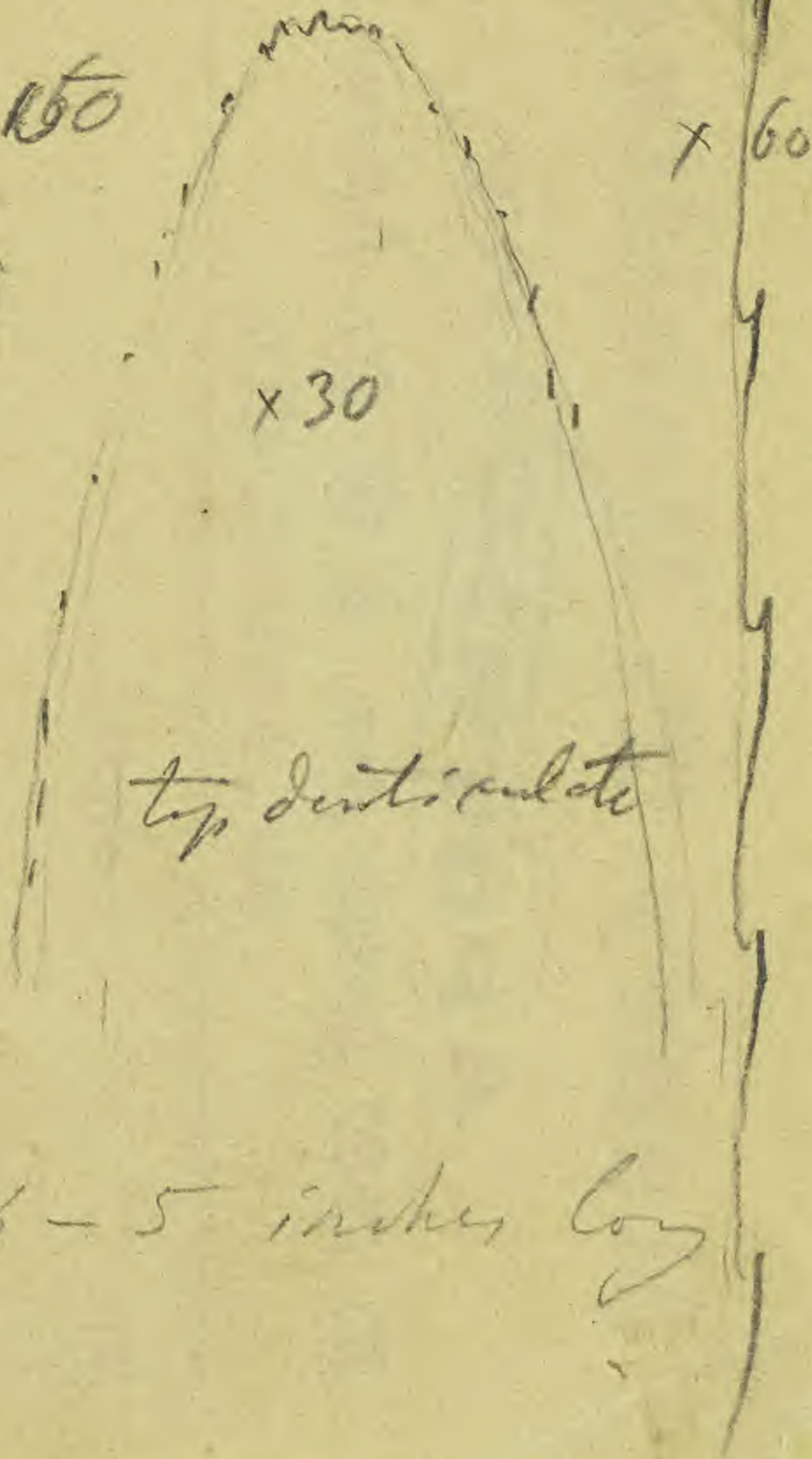
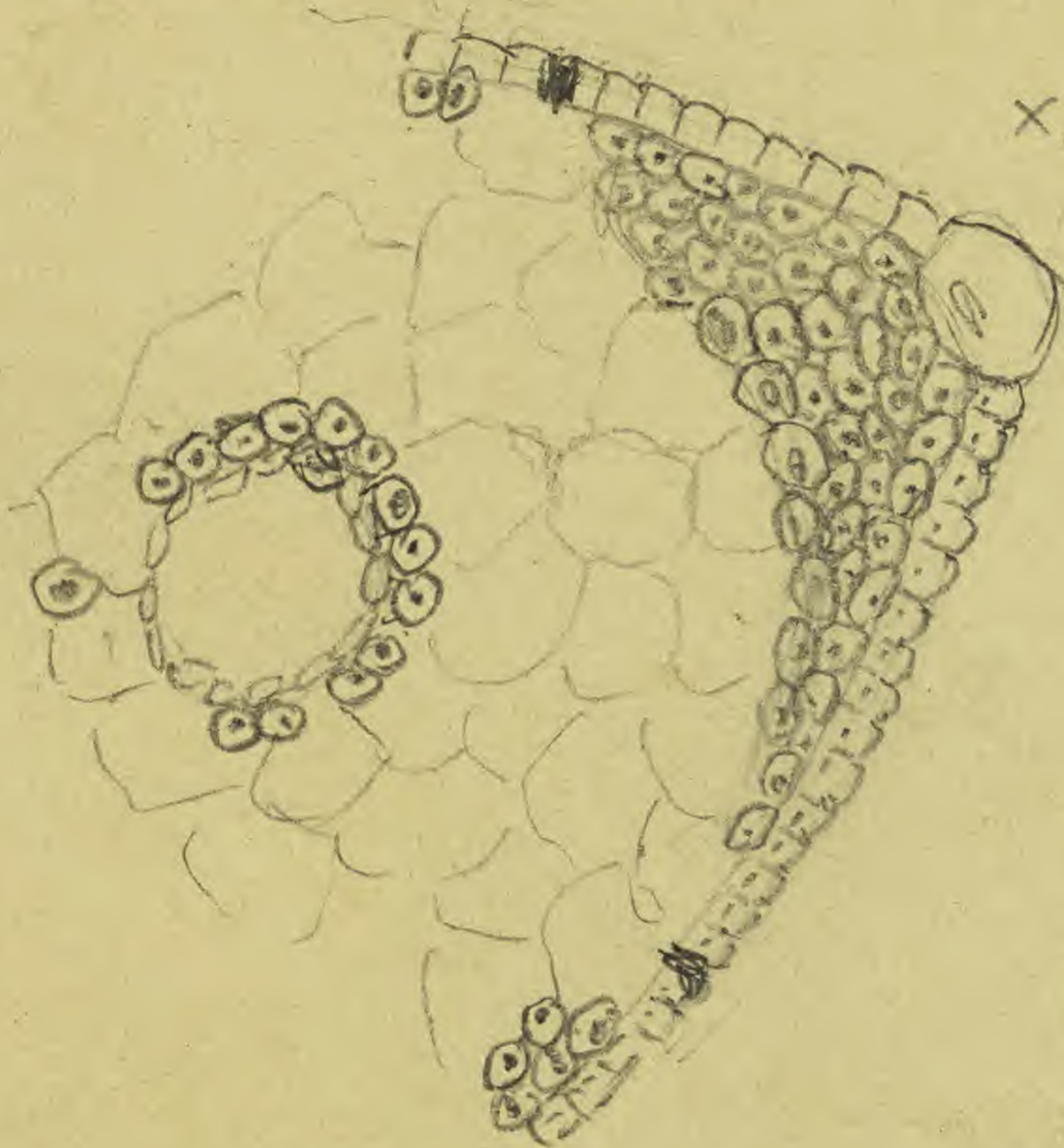
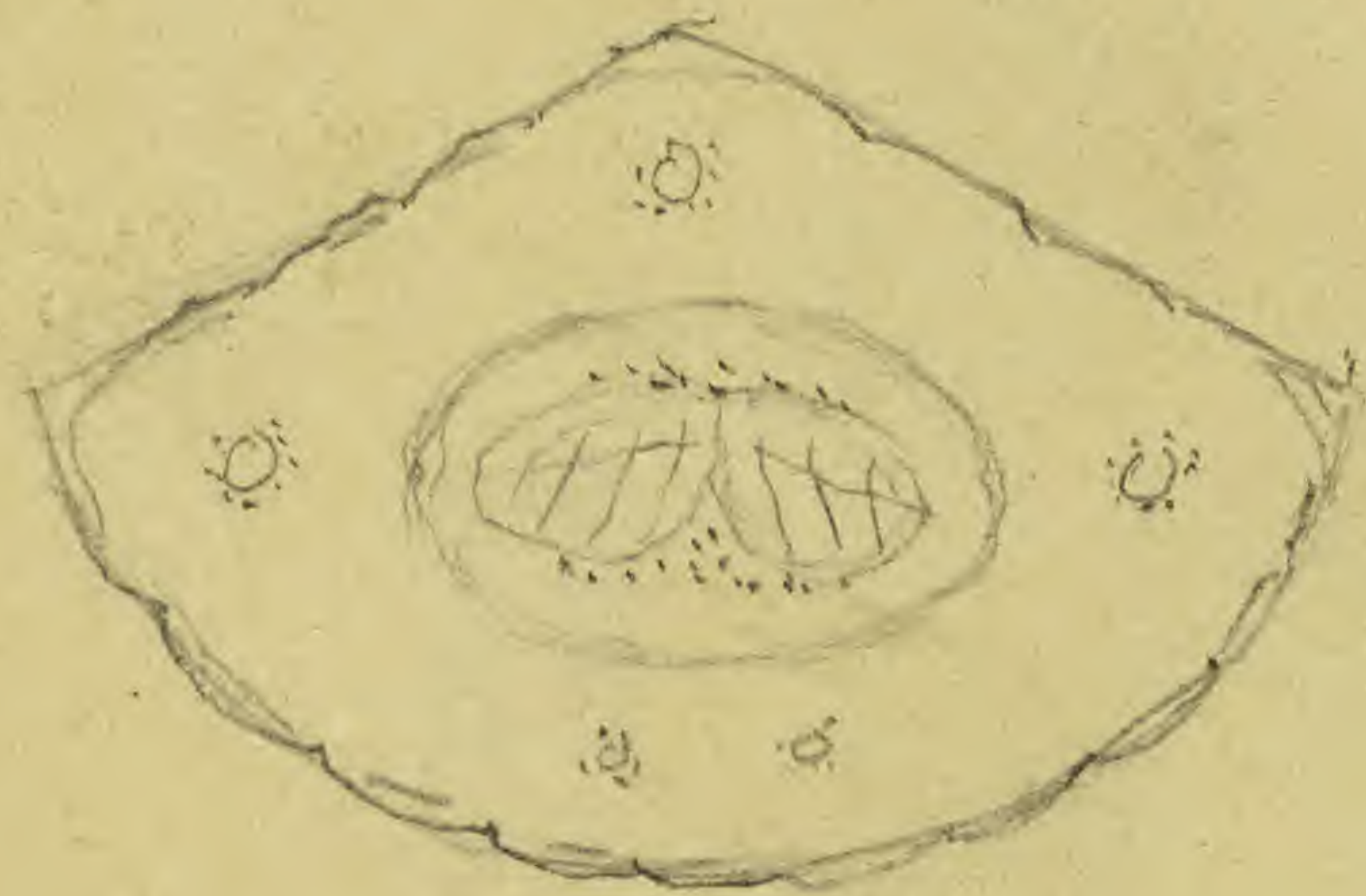
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*Pinus Jeffreyi*

June 10 1878

Bolander 1866



remains lip  
of scale x4

fem. ament

leaves 4-5 inches long



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"*Pinus ponderosa*"

Nov 14 1875

4 & 5 leaved - Sierra Nevada, Lemmon

x 30



5-6  
bundles  
on side

8-10 bundles  
on back

Resin ducts parenchymatous,  
often only 2 lateral ones,  
towards tip of leaf.  
5 or 6, all within the  
parenchyma

May 8 1878.

numerous bundles of hypoderm  
cells around leaf and strong  
layers within sheath above and  
below vessel-bundles - but  
few around ducts



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**Leitch & Corlies**

**DRUGGISTS**

South West  
Corner Fifth  
and Market  
Streets.

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*Pinus ponderosa*

Febr 11 1876

"*P. deflexa* Torr"

Perry mss 1876

original sp.

x 30



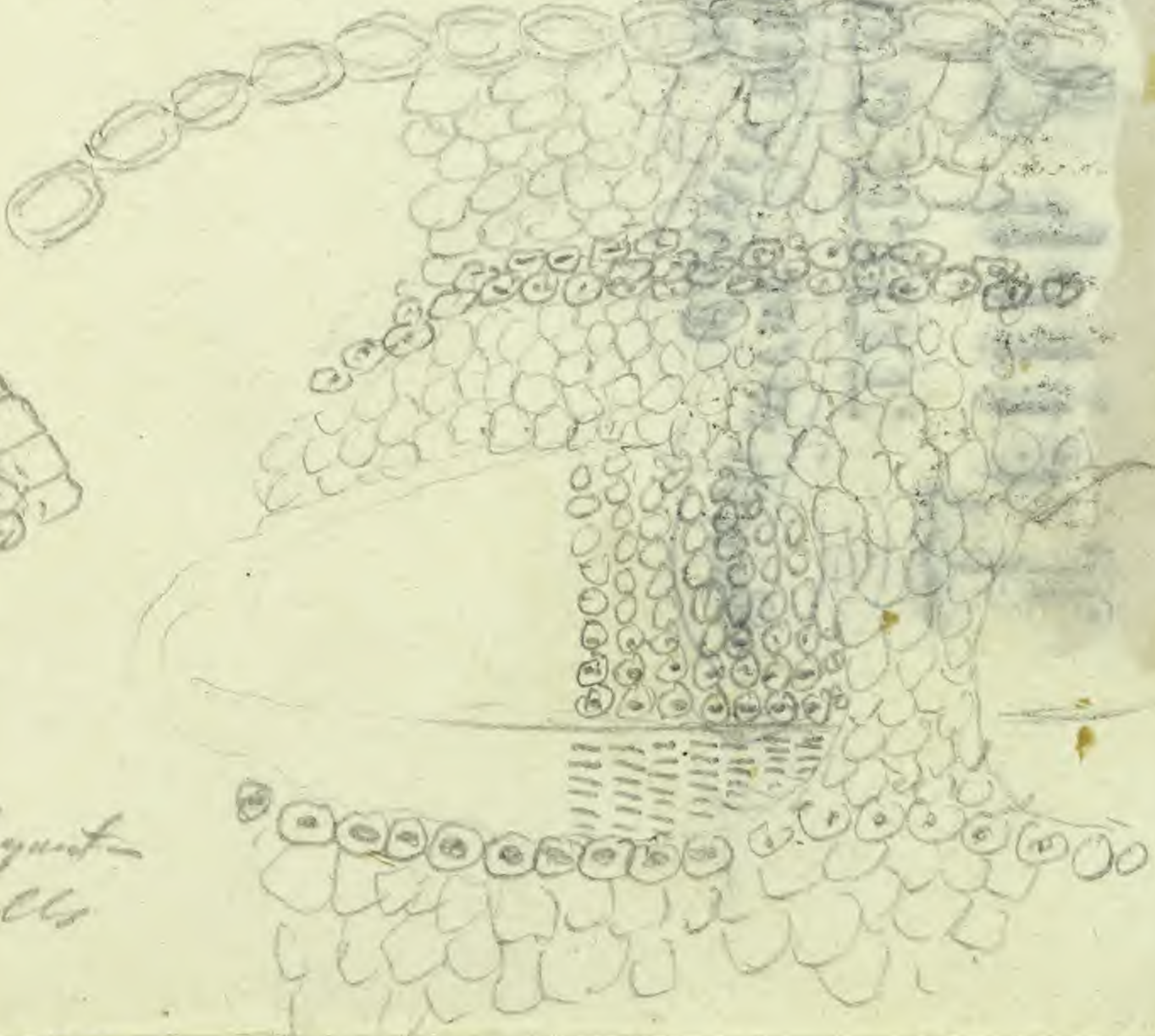
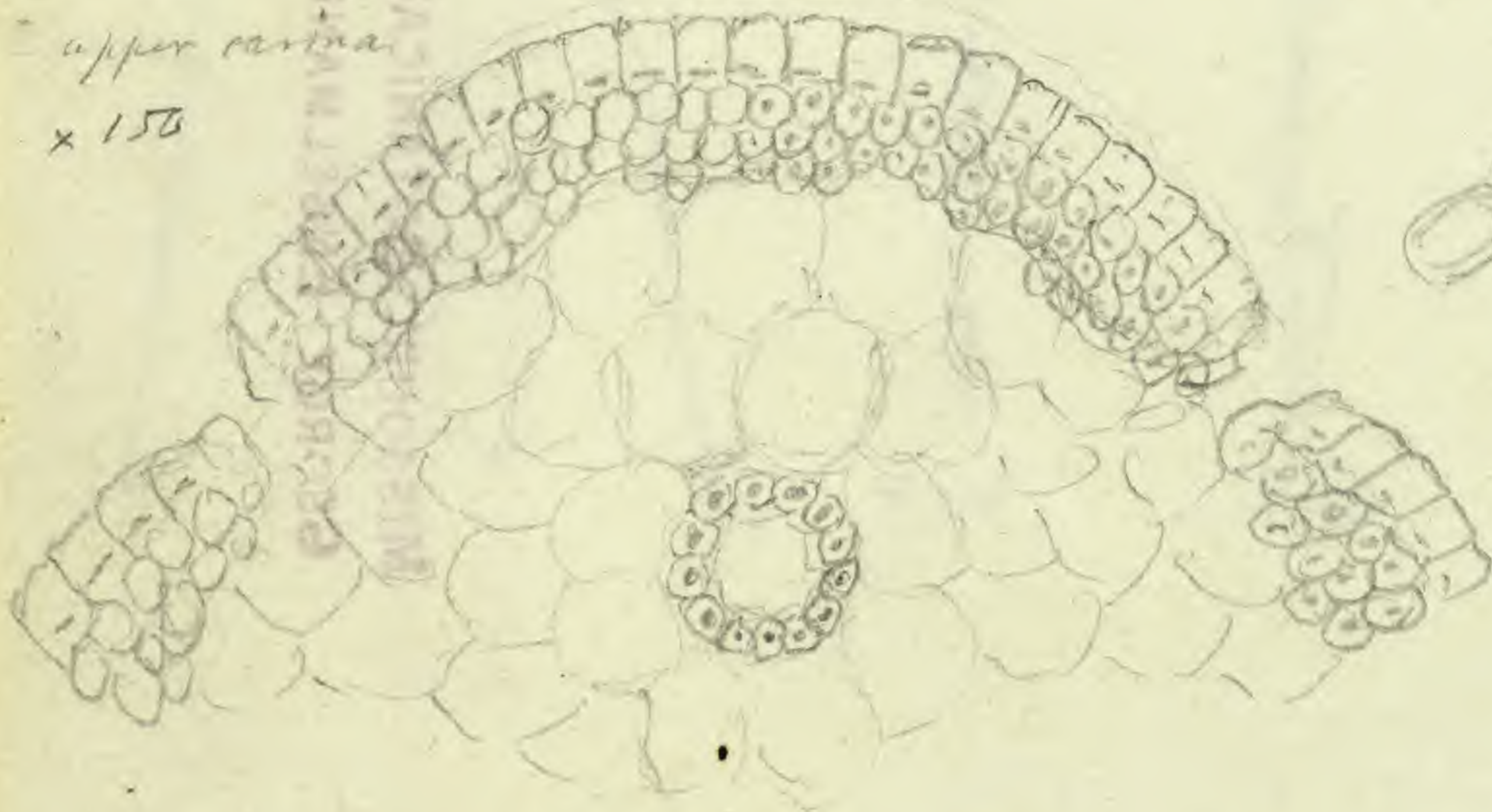
x 280



part of bundle  
of vessel with part  
of sheath x 250

upper carina

x 150



3 Residuals small, sometimes  
almost obliterated, parenchymatous  
surrounded by false bark cells



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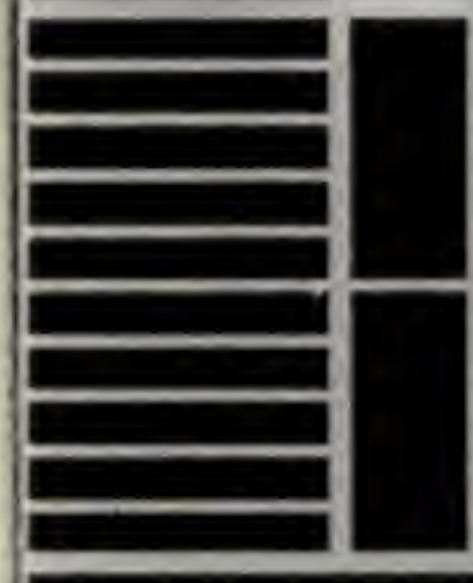


WILLIAM GALT STEIN

South-west Fifth Market  
Corner and Market  
Streets

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*P. ponderosa*  
+ *P. difflua* <sup>11</sup>

Feb 1

S Calif & Barry



x30

x60

GEORGE ENGELMANN PAPERS  
30

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30



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1123  
Leitch & Corlies

DRUGGISTS

South-west  
Corner Fifth and Market  
Streets

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*Hypericum*

Febr 12 1876

South California Rothrock No 251 1875

Head of Fern Creek

upper side of leaf. dry  
x 280



x4

x60



x30

April 1878

x30

10 Cotyled.



seeds very small and indistinct  
surrounded by hypoderm cells



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11124

CHEMIST

ALEX. LEITCH,  
APOTHECARY & CHEMIST,  
Cor. 4th and Olive Sts., St. Louis.

ALL THE NEW REMEDIES  
CONSTANTLY ON HAND

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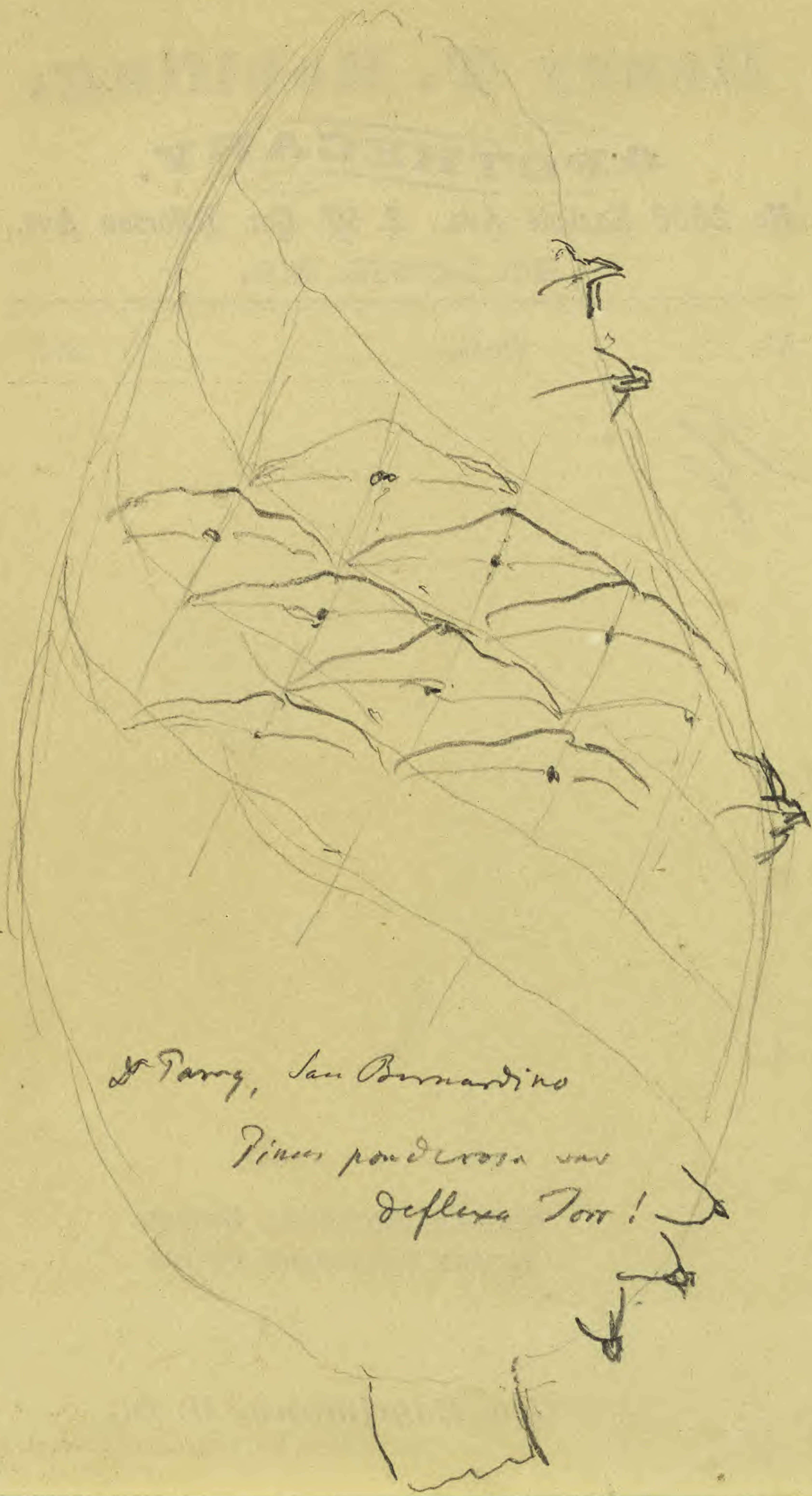
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J. Parry, San Bernardino

*Pinus ponderosa* var  
*deflexa* Torr! 

April 28 1878



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No. \_\_\_\_\_ Date, \_\_\_\_\_ 187

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Geo. Engelmann, M. D.,

No. 3003 Locust Street,



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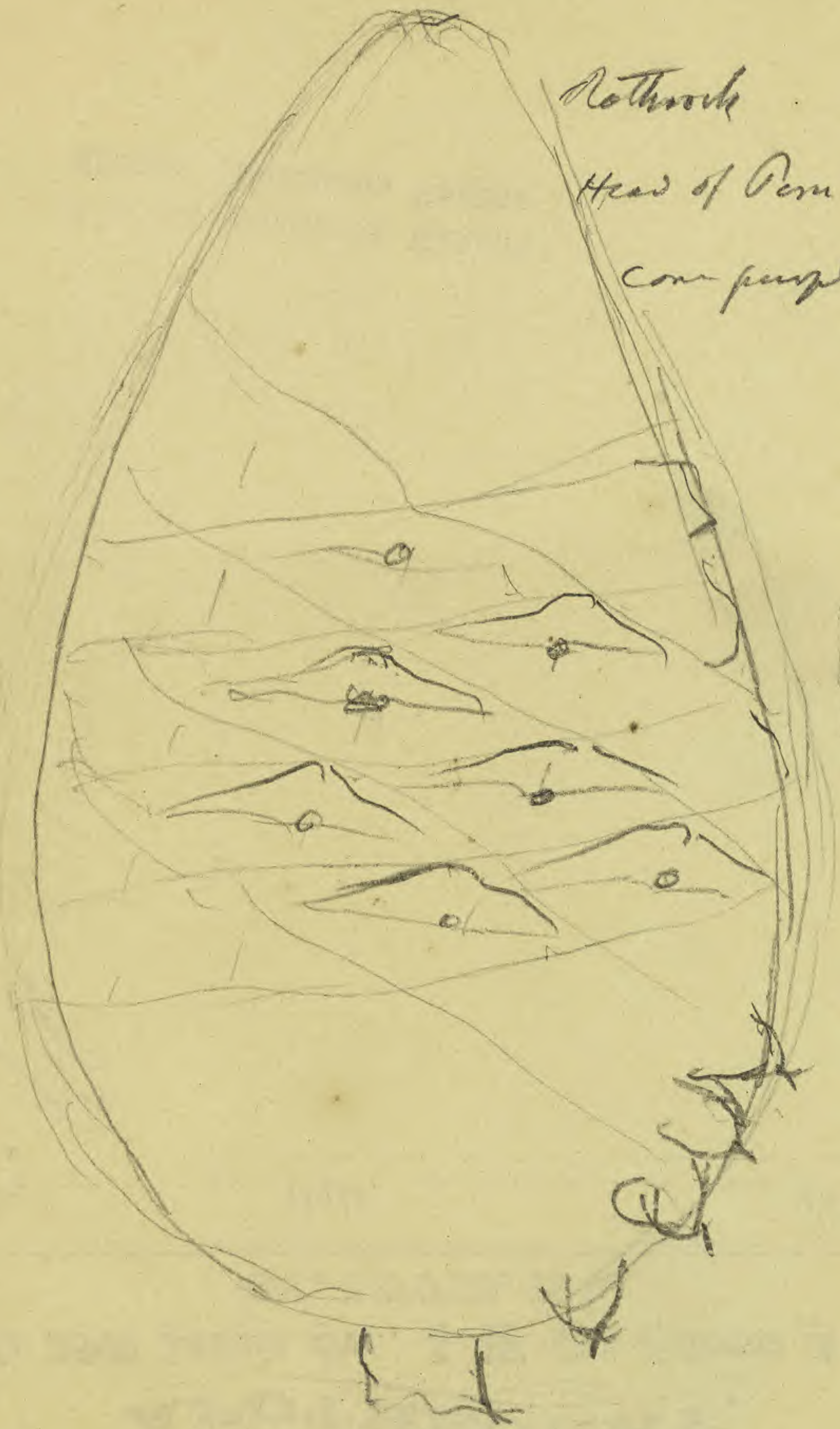
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Rothrock  
Head of Fern Creek  
cone purplish

April 28 1878



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Geo. Engelmann, M. D.,

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HENRY T. ROHLFING,  
APOTHECARY,

1126



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5 Feb

46

*P. Canariensis*

169-173



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x 415

*Pinus Canariensis*

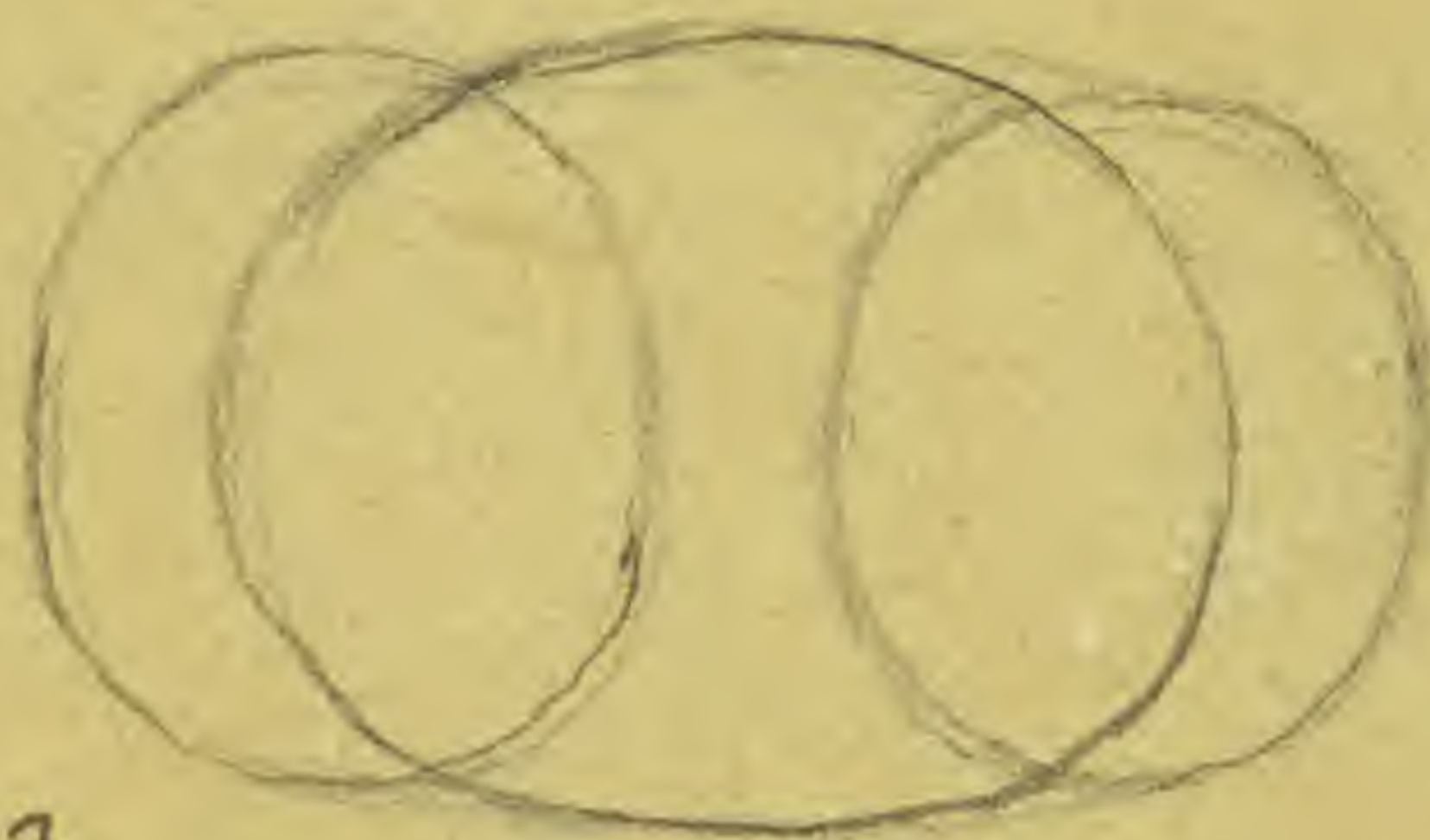
Sept 20 1863

H.B. Meap. March 7 1858

Very young amounts

sketches!

'''  
0.033



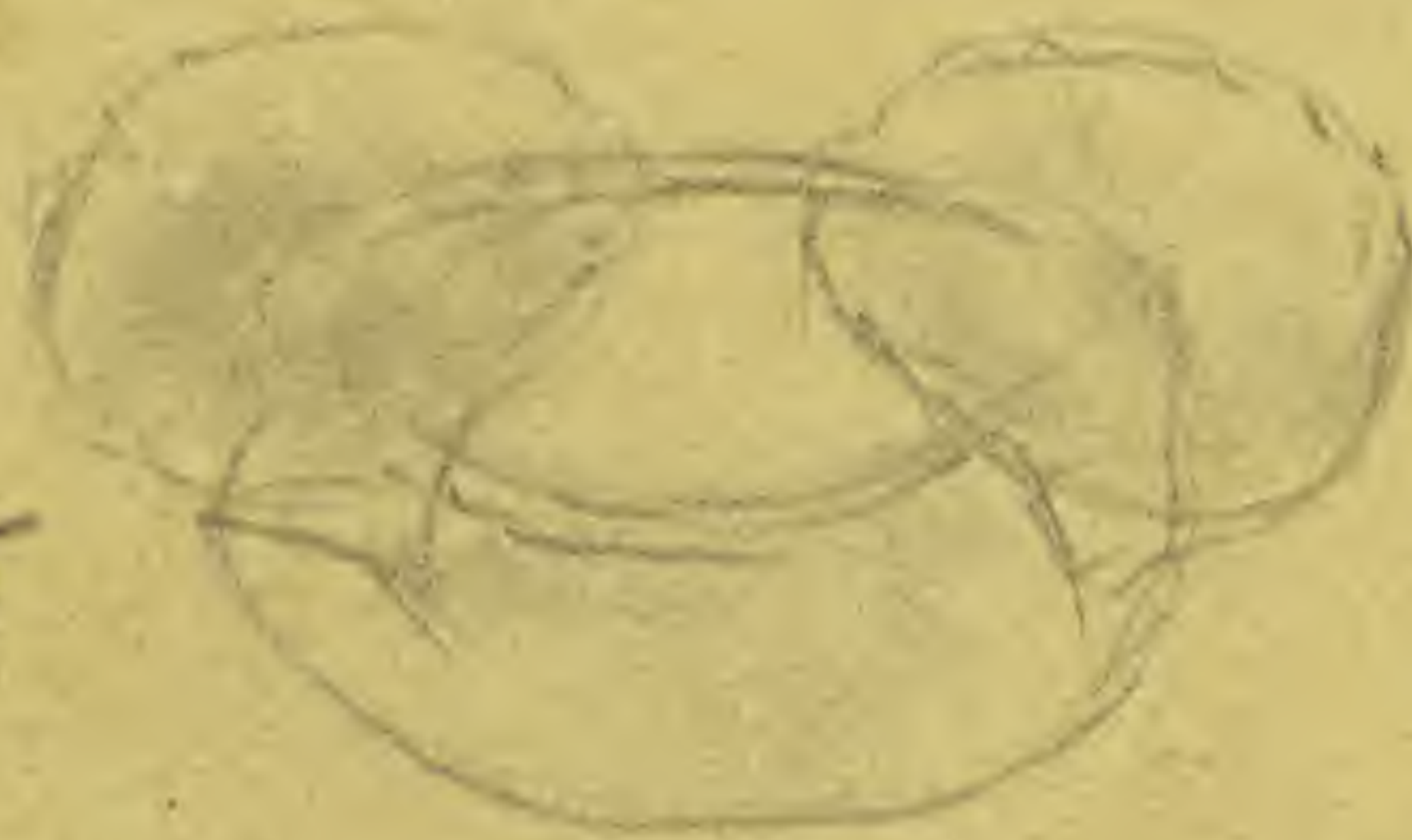
'''  
0.035



'''  
0.033



'''  
0.035



x 10

x 4



norm



norm



?



OVER

Pollen grains all show the middle cell oval, somewhat flattened, and with regular outlines, while the two lateral ones are invariably shriveled - younger?



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bracts deciduous before opening of  
anthers. = *P. sylvestris*

axis of male infl.  $2\frac{1}{2}$ " long  
very rough by the persistent re-  
curved protruding base of bracts

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

8211



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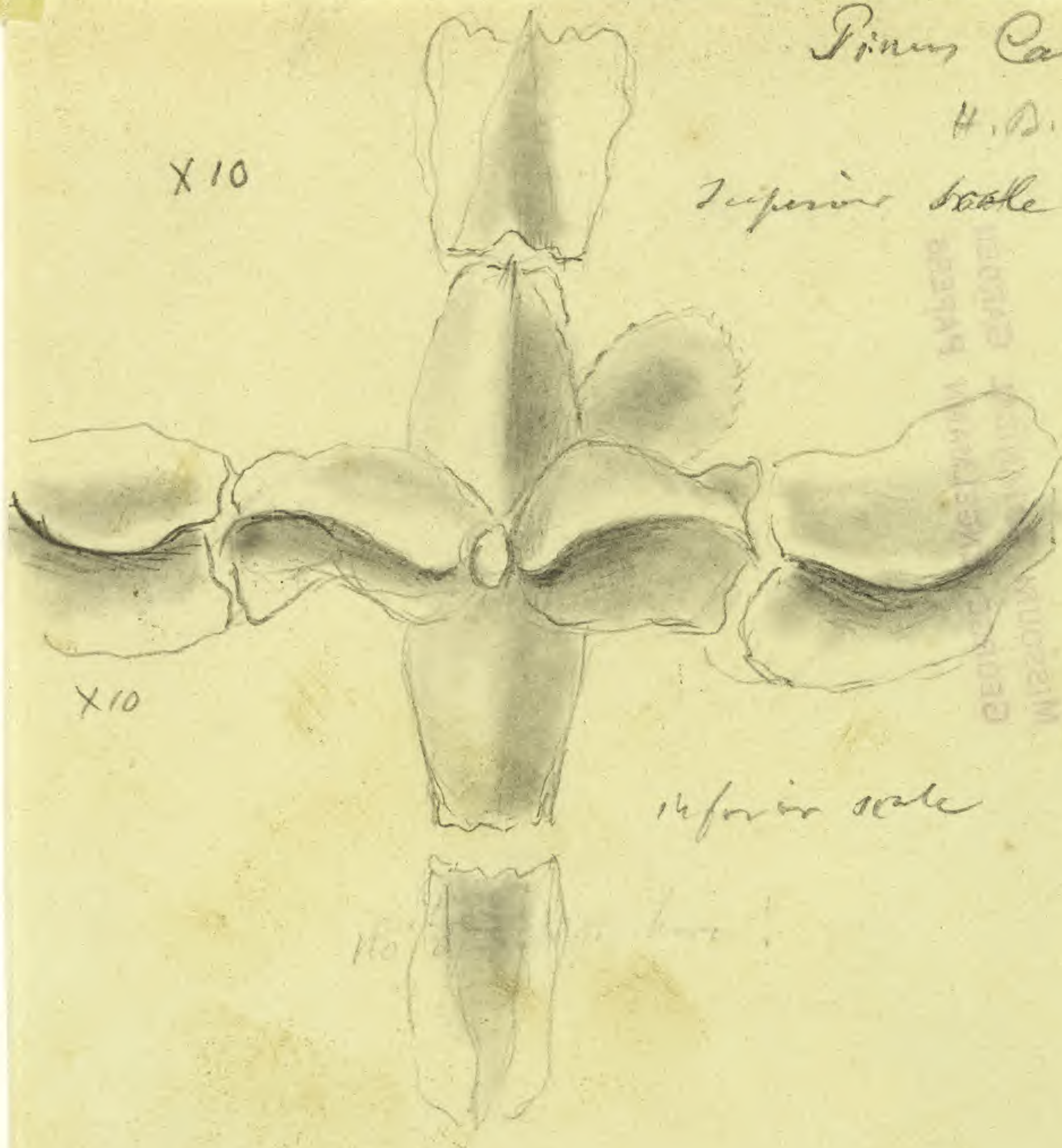


*Pinus Canariensis* Sept 21 1863

H. B. Naples

Superior scale

X 10



young  
anther



4 angled

4 scales, often  
with a 5<sup>th</sup> additional  
one (nearly a 6<sup>th</sup> ?)

The 4 principal ones  
articulated with  
middle - upper part  
soon deciduous



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*Pinus Canariensis*  
Teneriffe, Labrey

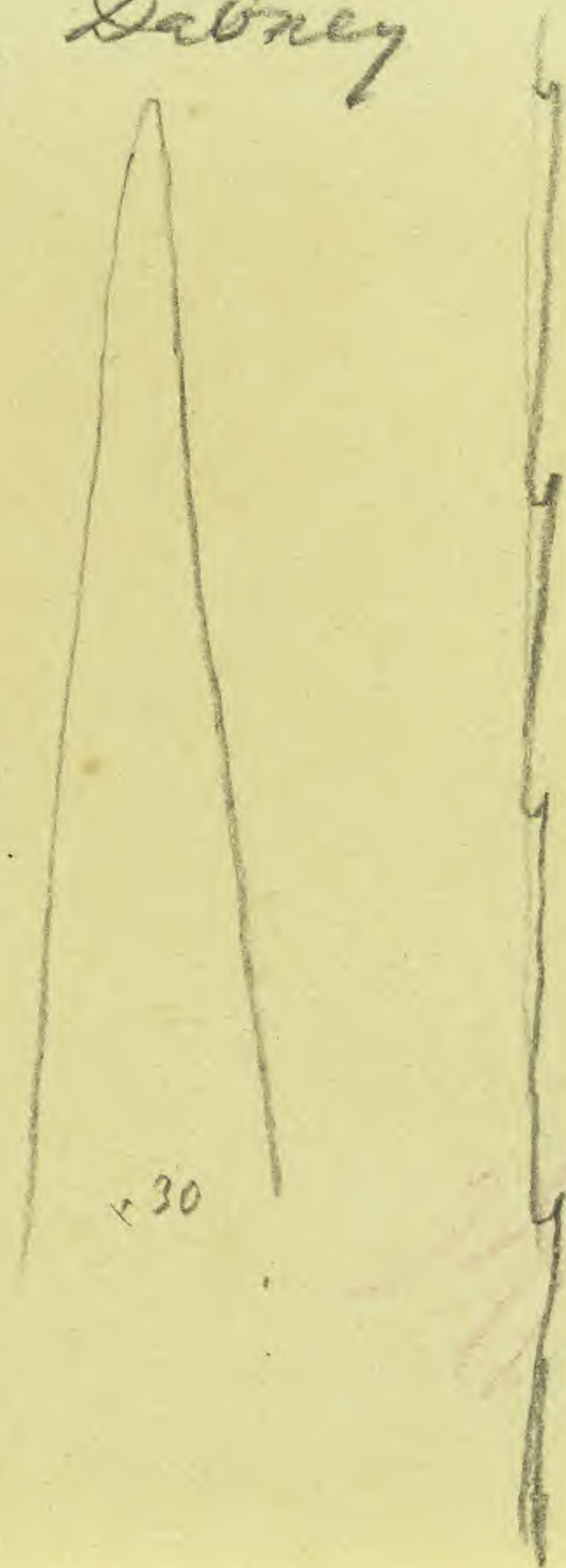
May 17 1879

x 30



2. Ducts, parenchymatous  
but connected with the  
innermost hypoderm bundles  
on lower surface, some of  
which reach almost to the sheath.  
Some hypoderm rolls within sheath.

x 30



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*Pinus Canariensis*  
 Hort Bot Neapolit

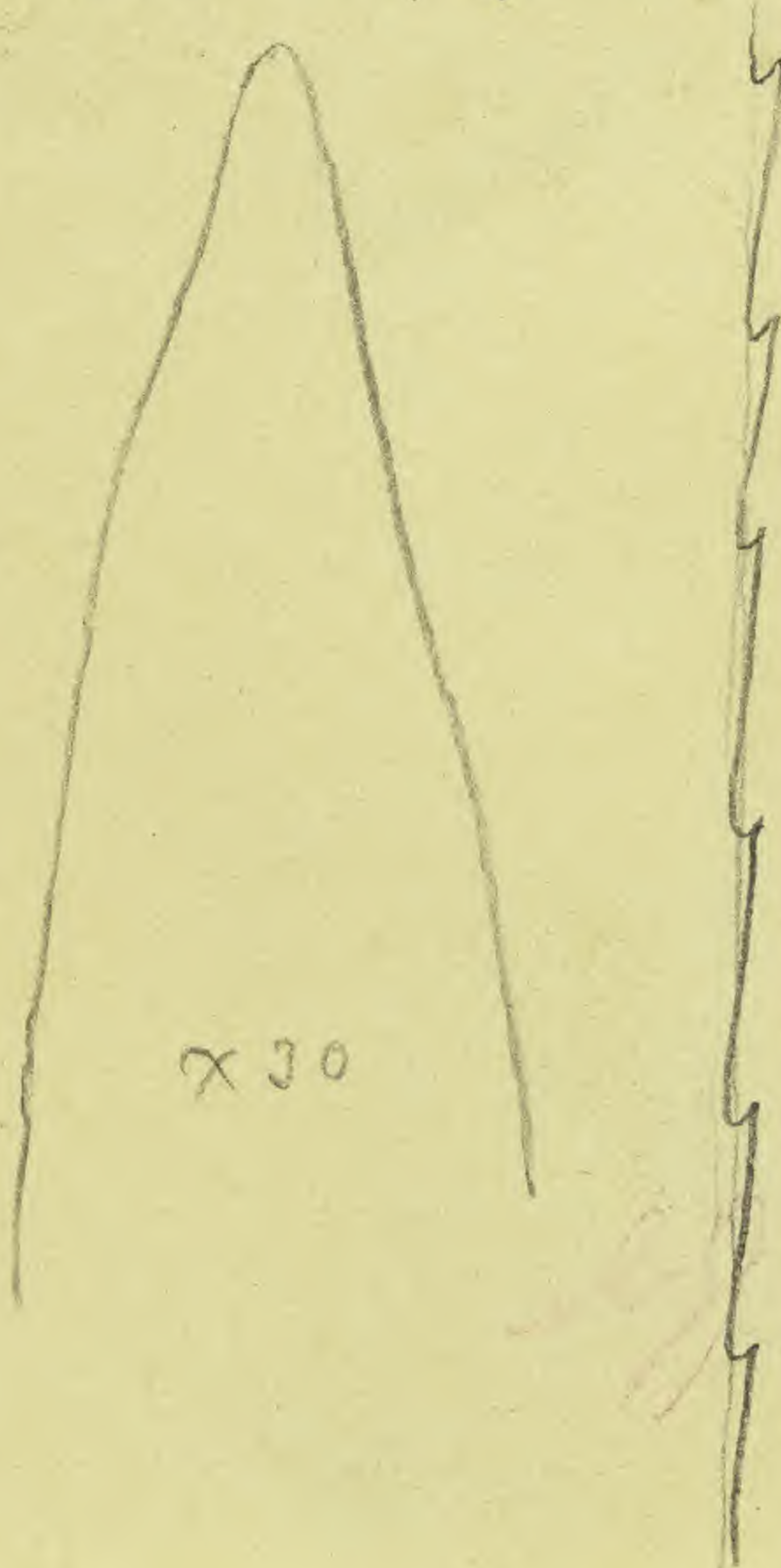
May 17 1879

x 30



2 apparently parenchymatous  
 ducts, but connected with  
 immense bundles of hypoderm  
 belonging to lower surface  
 ducts also surrounded by hypoderm  
 hypoderm very strongly developed  
 but few cells within sheath

x 30



760



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*Pian Canariensis*

May 17 1879

Senigaglia, Bonzean

x 30



2 (sometimes only one<sup>\*</sup>)  
parenchymatous duct  
surrounded by hypodermis  
fibers (2 on each side above  
and 3-4 below) very strong  
hypoderm bundles under epidermis,  
and one in each angle  
hypoderm cells also in sheath  
\* the second duct often a  
little more towards the  
lower surface and connected  
with the peripheral hypoderm bundle

x 30

x 60



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Tab 5

47

*P. Chihuahuana*

174-8



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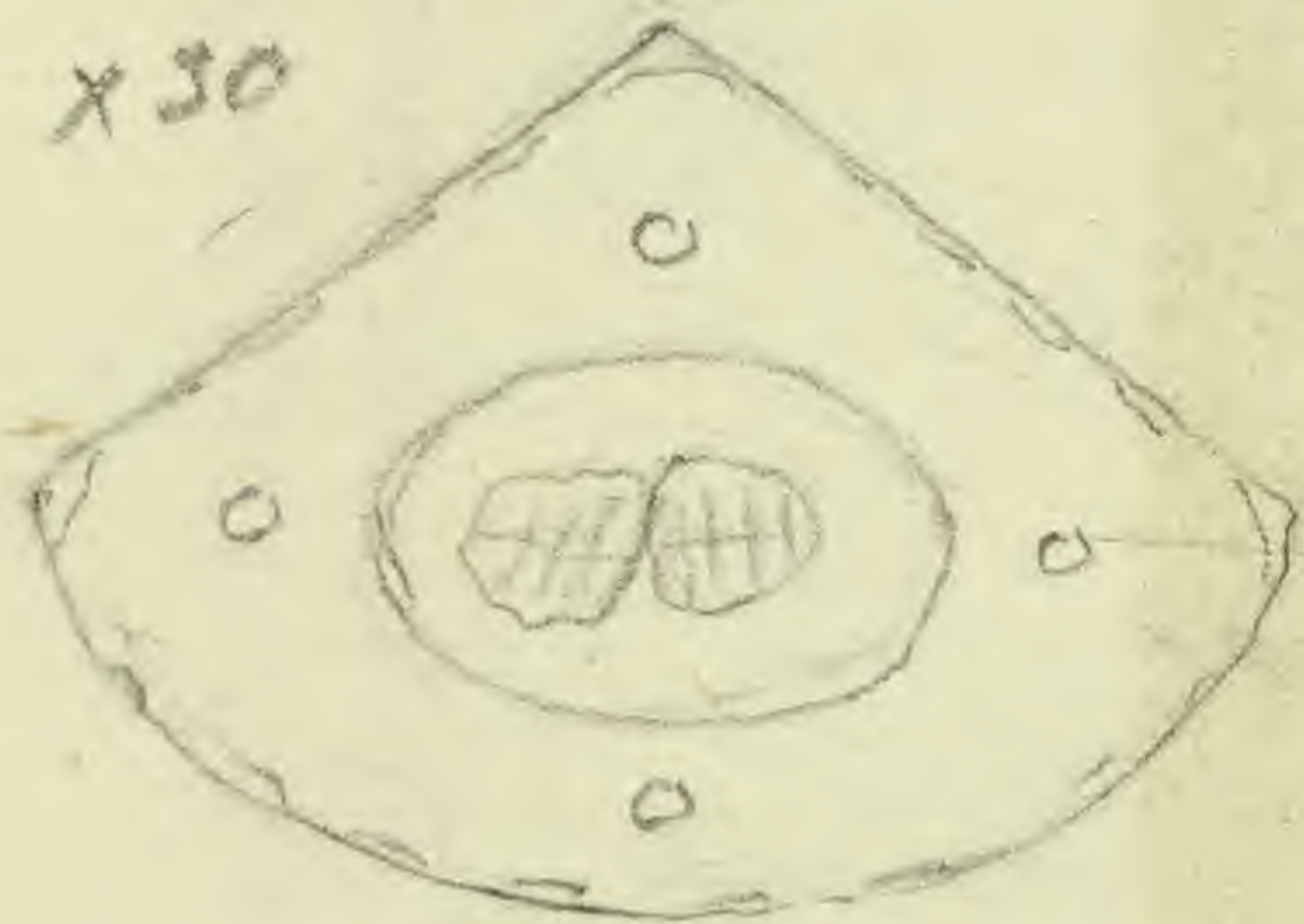
*P. Chihuahuana*

May 15 1878

Arizona Wright

leaf 1.2 mm wide

x30



x30

2 or very often 3 or 4 ducts  
without hypoderm

hypoderm all around and in  
corners, but sparingly



x60

teeth about  
 $\frac{1}{20}$  line distant  
for an inch  
or 20 teeth  
(more correctly  
17-20) on  
the space of one  
line



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500/1005  
6/30 05/29  
100/1 = 100/5  
100/7

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x30



traces of 2 parenchymatous  
ducts, mostly  
indistinct.

strong hypoderm cells, on the angles  
and over the back and sides,

*Pisonia Chikara*  
Arthur Gray

April 26 1878  
1874 Sonoran Valley  
South Arizona



x30

x60



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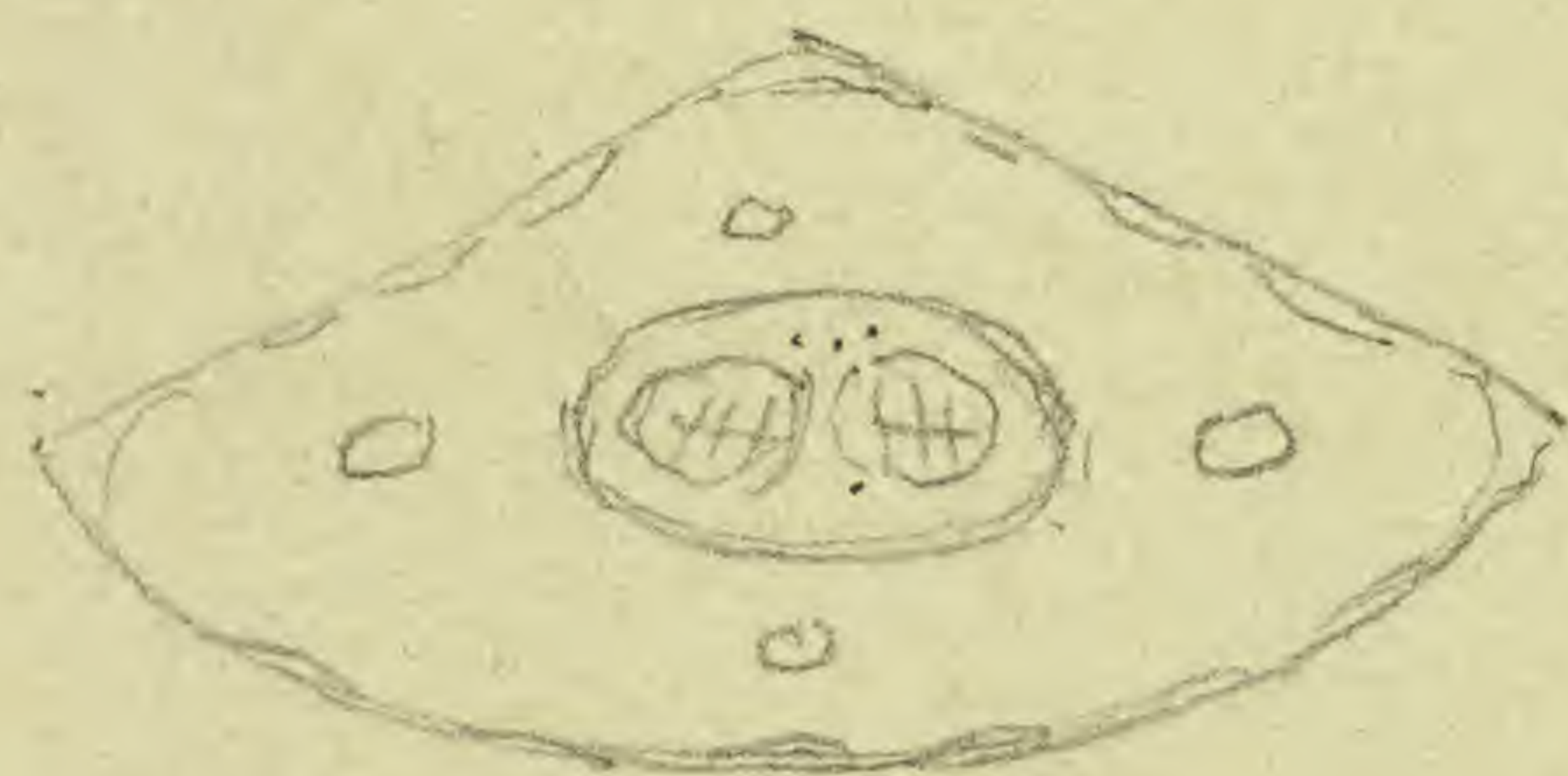


*Pinus Chihuahuana* !

May 15 1878

*Coriaria* , & *Wrightii* 1846

leaf 1.4 mm wide



x30

of 4 ducts, without hypoderm  
hypoderm in thin layers all around  
leaf - 3 on sides, 6-7 on back

of a few hypoderm cells within sheath.



x60



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